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Authors of papers intended for publication in Food Technology should request from the Editor's office a copy of a booklet, titled "Suggestions to Authors," and see that their papers are in the form specified therein before they are sent to the editor.

The Institute of Food Technologists assumes no responsibility for statements in contributed articles appearing in Food Technology. Editorials present only opinions of the writers and do not necessarily reflect policies of the Institute of Food Technologists.

Abstracts

(Continued from page 2)

207I. Studies on the adequacy of human milk and artificial human milk for the rat.

SCOTT, M. L., AND NORRIS, L. C. *J. Nutr., 37,* 337-51 (1949).

Mature human milk, even when supplemented with vitamins and minerals to meet the known requirements of rats, is entirely unsuitable as a diet for the rat. Human colostrum, supplemented in a like manner, does support a slow growth. An artificial human milk formulated to contain the same gross chemical composition as that of human colostrum promoted approximately the same growth. Artificial human milk containing a slightly higher level of protein promoted considerably better growth. The failure of rats to grow on human milk is probably due to: (1) Insufficient protein, more particularly methionine; (2) a deficiency of the unidentified factors; and (3) a level of lactose in excess of that which can be tolerated by the rat. The rat is a poor experimental animal for use in attempting to evaluate a food for young infants.

208I. Fluorides and hardness of tooth enamel.

Nutr. Rev., 7, 41-43, Feb., 1949.

A review of the effect of fluorides on hardness of tooth enamel. Apparently flourides by topical application to "in vitro" teeth can increase the hardness of enamel, but more accurate test measurements must be devised before an acurate estimation can be made of this effect in the mouth of a living animal.

209I. Sulfur balance indexes of casein in adult dogs with and without addition of DL-methionine.

ECKERT, J. N. *Arch. Biochem., 19,* 379-87 (1948).

Methionine is known to exert a marked protein sparing effect, decreasing as reserve protein stores are depleted. Methionine also exerts a sulfur conservation effect. In positive sulfur balance, added methionine not utilized is not excreted as such, but as inorganic sulfate in the urine. The urinary S/N ratio decreased with increasing absorption of casein sulfur. The addition of methionine increased this ratio in the region of positive sulfur balances.

210I. The pantothenic acid requirements of chicks receiving a purified diet.

HEGSTED, D. M., AND RIGGS, T. R. *J. Nutr., 37,* 361-7 (1949).

The minimum requirement of pantothenic acid for maximum growth of young chicks receiving a purified diet was estimated to be approxmiately 900 μg per 100 g. dict.

211I. Stability and utilization of vitamin A emulsions in mixed feeds.

HALPERN, G. R., MARCH, B., AND BIELY, J. *Poultry Sci., 28,* 168-72 (1949).

Practical chick feeding experiments have been carried out with vitamin A emulsions and feeding oils mixed into the ration. They revealed no difference in biological action or stability of the vitamin A in either form when mixed and stored in the ration.

212I. Carotene from vegetable leaf wastes compared with vitamin A in laying rations.

SKOGLUND, W. C., TOMHAVE, A. E., AND MUMFORD, C. W. *Poultry Sci., 28,* 298-300 (1949).

In most cases carotene from dehydrated vegetable waste in the form of a concentrate is just as efficient as vitamin A esters from fish liver oil in maintaining egg production, feed consumption, and hatchability in laying pullets.

213I. The sulfur amino acid requirements of turkey poults.

KRATZER, F. H., WILLIAMS, D. E., AND MARSHALL, B. *J. Nutr., 37,* 377-83 (1949).

Young turkey poults were fed rations containing an isolated soybean protein to which various additions of cystine and methionine were made. Approximately 0.5% methionine and 0.3% cystine were required for the optimum growth of the poults on a 24% protein ration.

FOOD PRODUCTS

CEREAL AND GRAINS

214I. Milling process for granular food crop products, including fling impacting in breaking and finishing operations.

CARTER, R. J. S., AND MCDONALD, H. Assignors to Pillsbury Mills, Inc. 2,464,212, Mar. 15, 1949.

The process of milling that class of natural granular food products comprising wheat, rye, corn, beans, soybeans, and peas, which consists in first centrifugally moisture conditioned granules in natural whole form, at high velocity, against impaction surfaces to shatter the same, disintegrating the friable endosperm portions and breaking away the germ from endosperm and hull, then separating out the germ in substantially whole form and separating out also the larger hull portions containing endosperm particles adhering thereto and thereafter centrifugally fling-impacting hull portions to loosen and disintegrate the endosperm adhering thereto, collecting the disintegrated endosperm from impacting operations and reducing and dividing by a separate fling-impaction step.

DEHYDRATED FOOD

215I. Refrigerated storage of dried fruits.

PENTZER, W. T. *Ice and Refrig., 116,* 57, April, 1949.

Storage of dried fruits at approximately 32° F. with 40° F. as an approximate upper limit, and also at low humidity, is of sufficient value to the dried fruit industry generally to justify such storage as standard year-round practice. Low-temperature storage controls browning, particularly for dried apricots and peaches, but also for apples, pears and nectarines, and even for whole fruits such as prunes and figs. At the low temperature mentioned, insects such as raisin moths and dried fruit beetles, which commonly infest dried fruits, are dormant and are gradually killed. Flavor, texture, color and vitamin content of dried fruits are protected notably and significantly at low temperature. Low humidity controls sugaring, both externally, and internally, which affects raisins, figs, and prunes and to a minor extent, apricots. Avoidance of high humidity and in some instances of even moderate humidity is necessary to prevent mold and sugaring. For this reason, a temperature of about 31 or 32° F. is safer and better than 40° F.; however, low humidity is important at 31 to 32° F. as well as at higher temperature of 40° F.

216I. Removing ultimate moisture from powdered products.

BEARDSLEE, A. C. Assignor to The Borden Co. 2,465,963, Mar. 29, 1949.

The process of removing ultimate moisture from a powdered food product which comprises continuously feeding the powdered product through a vacuum drying chamber wherein the pressure does not exceed that corresponding to about 20 mm. of mercury absolute pressure, externally heating the product during its passage through chamber, bleeding in controlled amounts of air to assist in the movement of powdered product through said drying chamber and to disperse product, whereby evaporation of moisture is favored and local overheating prevented, agitating and cooling powdered product under vacuum, separating evolved vapor from powdered product while it is being agitated and cooled, and discharging dried powdered product to a storage receptacle.

FISH AND SEAFOOD

217I. The problem child of wastes turned into profits.

Fish Gaz., 66, 38-9, Mar., 1949.

Waste liquid from fish processing plants is separated into meal, oil and condensed fish solubles, with only the condensate

(Abstracts continued on page 10, following technical papers)

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Write to regional secretary, if within an area covered by a regional section, or to the Secretary of the Institute, for an application form and information regarding qualifications and classifications.

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News of the Institute

HONORS TO DR. DEUEL

At the May 18 meeting, the Southern California Section had as honored guest one of their members upon whom two outstanding honors have recently been conferred. In April, during a meeting of the Federation of American Societies for Experimental Biology, Professor Harry J. Deuel, Jr., Head of the Department of Biochemistry and Nutrition of the University of Southern California, received the Borden Award for his achievements in research in Nutrition. A few days after his return to the University of Southern California campus, the administration announced his appointment as Dean of the Graduate School.

DR. HARRY J. DEUEL, JR.

Dr. Deuel is well known in the field of research. His interest in the nutritive value of fats began in 1919 when he was employed in the U. S. Department of Agriculture, where he worked with Arthur D. Holmes on the digestibility of animal and vegetable fats together with various hydrogenated oils. He received the B.A. degree from Carleton College in 1918. His abilities in research were further strengthened by work under Lafayette B. Mendel at Yale University, from which institution he obtained a Ph.D. degree in 1923.

The next five years were spent at Cornell University Medical School, where the influence of Graham Lusk was a stimulation in his work in energy metabolism. Here also his early studies in phlorhizin diabetes were conducted. Such studies, along with later investigations, have contributed much to the knowledge of the interrelationships between carbohydrate and fat metabolism.

After a year at the University of Maryland as Professor of Physiology, Dr. Deuel was appointed to the chair of Biochemistry at the University of Southern California where the School of Medicine had just been reestablished.

During the succeeding years, his many interests have brought about much coordinated research between the University and industry and have helped a number of students to obtain advanced degrees. Under grants from companies such as Best Foods, Inc., Swift and Co., Proctor and Gamble, and Lever Bros., he has been able to initiate in his laboratory and direct studies on the digestibility and the nutritive value of both natural and hydrogenated fats of animal and vegetable origins. Through studies on growth and reproduction over many generations of rats, he has concluded that no differences are apparent in the nutritive values of fats attributable solely to their classification as either vegetable or animal.

His work on vitamin A and the ability of various carotenoids to act as provitamins A has made him an authority in this field. When the National Association of Margarine Manufacturers became interested in the stability under storage of vitamin A in butter and margarine, Dr. Deuel was asked to undertake the study. He has cooperated with the dairy industry in studies of enrichment of the vitamin A content of milk by dietary means.

His success in associations with students, fellow faculty members, and the administration has also helped to put him in his present place of honor. This is attested to not only by his appointment as Dean of the Graduate School but also by the enthusiasm with which his colleagues have received the announcement. Dr. Deuel expects to continue his research in the field of fats.

Regional Section News

CHICAGO SECTION

On May 23, the Chicago Section was addressed by Mr. Otto Eisenschiml of the Scientific Oil Compounding Co., Chicago. The topic of his address was "Solving a Murder Through Chemistry."

Effective May 23, Mr. O. G. Braun of the American Can Co., Maywood, Ill., became Secretary of the Chicago Section. Mr. Braun replaces Dr. J. M. Jackson, who is moving from the Chicago area to a post in the American Can Company's Pacific Research Division.

Mr. Morris H. Katz, of Martin Food Products Inc., spoke on "The Role of Food Technology in the Modern Food Processing Organization" at the National Food Brokers Association Convention on March 23.

Dr. William J. Shannon has been appointed General Product Controller for Oscar Mayer & Company.

Mr. Robert I. Tenney and Mr. Fred A. Wilcox of the Wahl-Henius Institute attended the annual meeting of the American Society of Brewing Chemists in New Orleans, April 10-14. While there, Mr. Tenney presided at a technical session.

Mr. Victor Conquest has been placed in charge of all scientific research activities in all divisions of Armour and Company, reporting directly to the President.

Messrs. C. K. Wiesman and R. W. Bates, of Armour and Co., attended the Spring Meeting of the American Oil Chemists' Society.

(Regional Section News continued on page 9, following technical papers)

Notes and Letters

Thanks for Your Letters!

The response to our request for suggestions for cutting publishing costs of FOOD TECHNOLOGY has been gratifying. Criticism has been constructive and suggestions objective.

For the benefit of those who may have like or unlike views concerning the policies to be adopted, we summarize the opinions already received and abstract some of the typical responses:

1. Eliminate Section Notes.
2. Discontinue Abstracts.
3. Restrict news to those items which are topical and timely.

Here are some typical replies:

"I would suggest the elimination of Section Notes, then—if absolutely necessary—the abstracts. Chemical Abstracts covers the field very well and frankly I think their abstracts are better. Don't cut down on Editorial Comment. That is too good. If these cuts won't do the job, try to teach the contributors the advantages of brevity."

* * * *

"I would especially hate to lose the Abstracts but I could gladly forego Regional Section News, which I never read anyway.

"Is it a good suggestion to say that in the articles the tables are too complete? Certainly we can say something like that about graphs, for when a commentary goes with them in the text, a neat free-hand sketch almost without data can be more arresting than your 'copper-plate' jobs."

* * * *

"I am writing because of the mention under 'Notes and Letters' in the April issue that 'clipping' of the Journal was about to occur because of lack of revenue to cover expenses. Personally, I would rather see the length of some of the technical papers cut down (if this would save an equivalent amount in production cost) than eliminate Section Notes, Abstracts or Editorials. . . .

"Unless the Council has set up a policy which restricts the solicitation of advertisements, I should think the food industry itself, but more important, the supplying industries should realize that it is the Food Technologists, not the plant managers who specify the Brand of Valve or Screen the firm should buy. Perhaps, if an engineering article were to be included in each issue it would be easier to convince administrators of the industry's advertising funds that such are the facts. . . ."

* * * *

"In the April issue you asked for comments on means of reducing expenditures and amending editorial policies for FOOD TECHNOLOGY. I am always willing to offer my cures for any of the world's ills from ingrown toenails to control of the atom bomb, so there is no reason why I should overlook our own publication.

" . . . Now for the news of the association. It invariably reaches us two to three months late and therefore should be classified as history rather than news. I believe that some efforts should be made first to publish more recent items as news, and to reject the older ones. Secondly, the news as it has been published has been of little value because it has been largely in generalities, and has the general aspect of being 'canned.' You always feel that you have read the same thing two or three times before. In the form that it is published there is very little life to it. Far too much space is devoted to section activities, and far too little space is devoted to news outside the Institute which is of interest and value to the members. Also, there is far too little news about the general membership; it is limited almost exclusively to that small handful to whom we entrust the affairs of the society; we hear and see plenty of these people anyway. And finally, the news pages could and should be livened up a little with photographs. . . .

"My suggestion would be to publish FOOD TECHNOLOGY for the alternate months January, March, May, July, September, and November, and to publish *Food Technology News Edition* on the alternate months February, April, June, August, October, and December. The news edition should have the same size and the same general format as the regular edition. It could well be printed on a cheaper grade of paper. It should include certain improvements such as I mentioned above. Most important of all it should be printed by a more economical printing method than is used in publishing FOOD TECHNOLOGY at present. Such an edition would lend itself very readily to publish by lithoprinting; instead of type-setting the Vari-Typer or other improved typewriter could be used, none of which would involve any appreciable additional costs for cuts. . . ."

* * * *

" . . . Personally if a part of FOOD TECHNOLOGY must be discontinued or reduced I would prefer to see Abstracts first affected and then book reviews. Sectional news and editorials both are essential in aiding to preserve the interest and morale of the organization."

* * * *

" . . . I vote for discontinuance of the abstract section. I believe that the Institute can not do a reasonably good job on abstracts until its finances are greatly improved and it can afford to set up a board of abstracters which would do a reasonably good job of covering the entire field of food technology. Even then I am in doubt as to the justification of the Institute duplicating a long established abstract service that the American

Chemical Society and other organizations have been providing. However, on this second point I am open to conviction that the Institute should render this abstract service to its members when and if its finances will permit. . . .

"With respect to Book Reviews, my thinking runs somewhat along lines similar to my thinking with respect to abstracts. However, I think there is more justification of our running Book Reviews in FOOD TECHNOLOGY, particularly if they can be run very quickly after the book has been published. I do believe, however, that a space given over to book reviews can be cut down. . . .

"In regard to editorials, I pass. I am not much of a believer in editorials just to fill up white space. At the same time I believe that if FOOD TECHNOLOGY is going to be the official organ of the Institute, it should have pages available for editorial comment on subjects of controversial nature yet of importance to the food technologist and particularly to the Institute.

"Any comment which I express with respect to news is that the news section should be expanded, if at all possible; certainly not curtailed. . . . What we want is more and more news regarding the activities of the Institute as a whole, including committee reports, financial statements and news from the various Sections and regional groups. I believe that we should delete some of the trivia from these sectional or regional group news which would be of local or relatively local interest at best. . . ."

* * * *

"Re: Your request for Squawks, etc.:

1. I vote to eliminate Section Notes.

2. I vote to keep editorial comment well under control. Make it short and sweet. 'No souls saved after the first 50,000 words.'

3. Consider limiting abstracts to difficultly procurable articles.

4. Number the pages uniformly in the magazine. I fail to get anything but an irked feeling when I see page 6 followed by page 111 and page 146 by page 7. Sounds screwy to me!"

* * * *

Seven Regional Sections have reported votes of their members as follows:

SECTION I

	First Choice to Discontinue	Second Choice to Discontinue
Abstracts	3	3
Book Reviews	11	1
Editorials	3	1
Local News	16	5
National News	0	0

	First Choice to Reduce	Second Choice to Reduce
Abstracts	0	0
Book Reviews	10	0
Editorials	2	0
Local News	0	0
National News	0	0

"It was the opinion of this section that more of an effort should be made to get paid advertising so that none of the sections mentioned above would have to be discontinued."

SECTION II

	First Choice to Reduce	Second Choice to Reduce
Abstracts		
Book Reviews		X
Editorials		
News	X	

SECTION III

	First Choice to Discontinue	Second Choice to Discontinue
Abstracts	1	1
Book Reviews	4	7
Editorials	1	4
News	11	2

SECTION IV

	First Choice to Discontinue	First Choice to Reduce
Abstracts	4	1
Book Reviews	0	0
Editorials	0	1
News	2	0

SECTION V

	First Choice to Discontinue	Second Choice to Discontinue	First Choice to Reduce	Second Choice to Reduce
Abstracts	19	12	8	16
Book Reviews	24	17	16	9
Editorials	13	9	20	13
News	16	11	15	10

SECTION VI

Section	First Choice to Discontinue	Second Choice to Discontinue	First Choice to Reduce	Second Choice to Reduce
Abstracts	21	10	8	7
Book Reviews	18	19	9	8
Editorials	4	5	17	8
News	4	4	8	15

SECTION VII

Section	First Choice to Discontinue	Second Choice to Discontinue	First Choice to Reduce	Second Choice to Reduce
Editorial	—	X	—	X
News	X	—	X	—

The liberty that this editor has exercised in selecting the material reproduced is not a reflection of his lack of interest in many other topics developed in the letters. The "surgery" performed was purely in the interest of conserving space. Anyone who recognizes his foreshortened suggestions and wishes to be quoted more fully should let us know his wishes.

To those of you on the verge of writing us: "Obey That Impulse!"

Regional Section News

(Continued from page 6, preceding technical papers)

Mr. B. M. Shinn, of Armour and Co., gave a paper on "Nutritive Aspects of Meat and Meat Products" at the Institute of Public Health Practices for Veterinarians, sponsored by the Illinois Department of Public Health, in Springfield in March.

Mr. Wayne Marcoux has been named Section Head in charge of the Packaging Pilot Plant, Armour and Co.

Mr. William M. Fosdick has been appointed General Manager of Veal Sales in Southeastern United States for Armour and Co. His headquarters will be in Birmingham, Alabama.

At the annual meeting of the Nutrition Foundation, held in May at Skytop, Pa., Dr. L. E. Clifcorn of the Continental Can Co. gave a talk on "Research on the Nutritive Quality of Canned Foods." Mr. C. C. Conway, of the same company, closed the meeting with a talk on "The Viewpoint of a Trustee."

D. G. Heberlein of the Continental Can Co. has been elected President of the Association of Vitamin Chemists for 1950. He was on the Board of Directors for 1949 and was secretary of the Association two years ago.

NORTHERN CALIFORNIA SECTION

DeWitt F. Sampson, Assistant Manager of the American Can Company's Pacific Research Division, was transferred in June to the Central Laboratory at Maywood, Ill., as Section Chief.

The May issue of *The Hornblower* is devoted entirely to information about the Annual Meeting of I. F. T. in California in July. The editors are to be congratulated on the thoroughness and excellence of presentation of all pertinent details about the Convention. This issue of *The Hornblower* represents a valuable handbook about the 1949 Convention program.

The Entertainment Committee for the National Convention was enlarged and finally included the following members: Dick McKirahan and George Harnik (Co-Chairmen), Prescott Lloyd, L. R. Van Auken, Myron Powers, Jack Shaver, Abe Mittler, Herb Lipke, Sherman Leonard, and Mrs. Ilma Dolan.

At a meeting of the Executive Committee held on May 19 it was announced that E. A. Seipp, of Golden State Co. and a former member of the Chicago Section, has become a member of the Northern California Section. In addition the following applications for membership were approved:

R. D. Armstrong, The Welch Grape Juice Co.

Henry Ball, F. M. Ball & Co.

T. D. Barlow, The Barlow Co.

H. M. Buley, S & W Fine Foods, Inc.

B. J. Butler, Atlas Pacific Eng. Co.

Alice R. Collings, Western Regional Research Laboratory.

J. C. Connell, American Can Co.

Dave Eolkin, Gerber Products Co.

E. W. Flavell, Holly Sugar Corp.

L. F. Jents, Doughnut Corp. of America.

A. A. Kloss, Western Regional Research Laboratory.

T. M. Lukes, student.

R. D. Mathews, S & W Fine Foods, Inc.

B. E. Monroe, Standard Brands, Inc.

J. J. O'Connell, Silveira & O'Connell.

C. F. Pinney, Langendorf United Bakeries, Inc.

NORTHEAST SECTION

On May 14, the Northeast Section held its final meeting of the season at the Goessmann Chemistry Laboratory, University of Massachuetts, Amherst. Mr. Malcolm B. Hall, Director of Training, Foxboro Instrument Company, Foxboro, Mass., spoke on "Instrumentation and Control in the Food Industries." Dr. A. F. Blakeslee, Professor Emeritus of Smith College, gave an address and demonstration on the "Differences Between People in Taste and Smell."

"Odor Identification and Thresholds" was the subject of a paper and discussion from the floor, led by Loren B. Sjöström, at the meeting of the Manufacturing Chemists' Association in New York, on April 19. Mr. E. C. Crocker collaborated in the preparation of the paper. Both are connected with Arthur D. Little Inc., Cambridge, Mass.

Mr. E. C. Crocker continues his speaking engagements, having given a talk at Rhode Island State College on May 6.

A short summer program in Food Technology was offered by the Massachusetts Institute of Technology during the period from June 13 to July 1. This program was under the direction of the following members of the Department of Food Technology, Massachusetts Institute of Technology (all members of the Northeast Section of I. F. T.): Professors W. L. Campbell, C. G. Dunn, E. E. Lockhart, R. S. Harris, and B. E. Proctor.

SOUTHERN CALIFORNIA SECTION

The following officers have been elected for the 1949-1950 season:

Chairman: Louis B. Rockland, Chemistry Department, University of California, Los Angeles 24, Calif.

Vice-Chairman: F. Leslie Hart, U. S. Food and Drug Administration, 1401 S. Hope St., Los Angeles, Calif.

Secretary-Treasurer: Margaret G. Morehouse, Department of Biochemistry and Nutrition, University of Southern California, Los Angeles 7, Calif.

Executive Committee: Gordon L. Merchant (1949-1951), Merck and Co., 1855 Industrial St., Los Angeles, Calif. Franklin H. Hunsicker, Continental Can Co., 3820 Union Pacific Ave., Los Angeles, Calif.

Section Councilors: Max S. Dunn (1949-1951), Chemistry Department, University of California, Los Angeles 24, Calif. Arthur N. Prater (1949-1951), Gentry Inc., 837 N. Spring St., Los Angeles 12, Calif. Alternate: Marsden Burns (1949-1951), 2460 E. Glenoaks, Glendale 6, Calif.

Local Executive Committee: Arthur N. Prater (1949-1950 as retiring Chairman). George H. Bowen (1948-1950), Mission Dry Corporation, 5001 S. Soto St., Los Angeles, Calif. Raymond E. Cox (1948-1950), Bireley's, 1127 N. Mansfield Ave., Los Angeles 38, Calif.

The national officers are as follows:

Councilor: E. A. Beavens, U. S. D. A. Bureau of Agricultural and Industrial Chemistry, 263 So. Chester Ave., Pasadena, 5, Calif.

Section Councilor, Budget and Finance Committee: Philip K. Bates, United Rexall Drug Co., 8480 Beverly Blvd., Los Angeles 36, Calif.

Chairman, Publicity and Program Committee: Arthur N. Prater, Gentry Inc., Los Angeles 12, Calif.

Chairman, Membership Qualifications: E. M. Choce, 1842 N. Gramercy Place, Los Angeles, 28, Calif.

PHILADELPHIA SECTION

On May 12, the Philadelphia Section held a dinner meeting, following which Dr. Jackson B. Hester of the Campbell Soup Co. spoke on "Fertilizers and Foods."

The following officers have been elected for the 1949-1950 season:

Chairman: Lincoln S. Hyde, Packing Department, American Stores Co., 424 N. 19th St., Philadelphia, Pa.

Vice-Chairman: E. Everett Meschter, American Preserve Co., 3rd St. and Lehigh Ave., Philadelphia, Pa.

Secretary: Robert C. Bucher, Frank H. Fleer Corp., 10th and Somerville Sts., Philadelphia, Pa.

Treasurer: Arthur D. Bowers, Campbell Soup Co., 100 Market St., Camden, N. J.

Councilor (for 2 years): John J. Sampey, Abbotts Dairies, Inc., 238 Lombard St., Philadelphia, Pa.

Executive Committee: Graydon V. Cass, Crown Can Co., Erie Ave. at H St., Philadelphia, Pa. Claude H. Hills, Eastern Regional Research Laboratory, U. S. D. A., Philadelphia, Pa.

MARYLAND SECTION

On May 13, the Maryland Section held a dinner meeting at which Mr. Paul Kircher, Chief Chemist of the Maryland Glass Corporation of Baltimore, spoke on "The Manufacture of Glass Containers for Food Preservation." Mr. Kircher's talk was illustrated with interesting demonstrations and experiments.

IOWA SECTION

On May 6, the Iowa Section was addressed by three speakers. Dr. Howells of the Quaker Oats Co. spoke on the history, development, and uses of furfural in synthetic rubber, rosin, nylon, paint, and other products. Mr. Wayne Flickinger of the Cherry-Burrell Co. discussed the different types of equipment made by his company. Mr. John Kooreman of Penick and Ford described the operations of his company in processing field corn and manufacturing products therefrom.

Guests present at the May meeting were Dr. Howard Lightbody (Quartermaster Corps, Chicago); Bob Stewart, Harlan Lortz, Joe Hoaglund, and Al Pin (Penick and Ford); Wayne Flickinger (Cherry-Burrell Co.); Earle Waffle (Wilson and Company); W. Bechtel (Corn Industry Research Foundation); Buck Grange and Ross Grange (IOA Foods); Phil Duval and Dr. Howells (Quaker Oats).

Members of the Program Committee for the coming year are John Kooreman (Chairman), LaVern Drake (American Can Co.), and Frances Carlin (Iowa State College).

Abstracts

(Continued from page 4, preceding technical papers)

remaining to be eliminated in evaporation by the Sharples-Lassen process. H_2SO_4 is mixed in stickwater at 150° F. A pH is established which arrests enzymolysis until the separating process has been completed. The proteins which impart the objectionable odor and make the solubles susceptible to fermentation are completely removed by continuous centrifuge, producing meal with a high riboflavin content. The oil is then separated from the liquor by centrifuging, and the remaining stickwater is put through evaporators which yield condensed fish solubles containing approximately 50% solids.

FROZEN FOOD

218I. A new method of freezing eggs in the shell and its possibilities for further application on freezing foods in general.

KALOYERAS, S. A. *Science, 109,* 171-3 (1949).

The problem was to reduce the water content to the extent needed to provide space for the expansion of the ice formed by freezing. Elimination of 2-3% was sufficient for freezing eggs under vacuum without cracking. Under these conditions, the treatment does not affect the quality of the eggs. The whipping quality of the white is somewhat improved.

219I. Effect of refreezing on quality of sea trout fillets.

POTTINGER, S. R., KERR, R. G., AND LANHAM, JR., W. B. *Comm. Fish. Rev., 11,* 14-16, Jan., 1949.

Preliminary tests indicate that immediate freezing of sea trout, with subsequenet thawing, filleting and refreezing of the fillets causes no marked adverse effect on quality over fillets prepared from freshly-caught fish and then frozen.

220I. Keep the temperature low when storing pork.

HALL, J. L. et al. *Refrig. Eng., 57,* 247-50 (1949).

Frozen pork loin roasts double wrapped, first in MSAT cellophane, then in freezer locker paper, were stored for periods up to 72 weeks at 10, 0, and —10° F. Other pork was stored at 0, —10, and —20° F. After 24 weeks of storage, the superiority of —10 and —20° F. over the higher storage temperatures for frozen pork was indicated. Better preservation of quality in pork stored at these low temperatures was indicated by high palatability scores, by the absence of peroxides, and by low fat acid numbers. Little or no effect was noted on shrinkage in storage or during cooking, on pH, on total or nonprotein nitrogen in either the tissue or in the press fluid, or on press fluid yield, which might be associated with either temperature or time of storage. It appeared that the freezing process may result in increased press fluid yield. There was some indication that longtime storage at any of the temperatures studied may result in an increase in resistance to mechanical shear. Vitamin retention was high throughout the study, indicating the stability of these vitamins during low temperature storage.

221I. Fat rancidity in eviscerated poultry. III. The effect of variations in dietary fat, ethanolamine and choline on the storage quality of mature turkeys.

HITE, J. R. et al. *Poultry Sci., 28,* 244-8 (1949).

The keeping qualities of eviscerated turkeys were compared after 4, 9 and 12 months of cold storage. These turkeys had been kept on two different basal rations, and had received supplements of choline, ethanolamine or fat. One basal ration was an experimental ration and the other a typical turkey ration. The acid, peroxide and aldehyde values of the fat extracted from the skins and the organoleptic tests of the unskinned carcass cooked under standardized conditions were used as a criterion for judging the keeping quality of the birds. These tests indicated that after four months of storage all the birds were acceptable. After nine months of storage all birds except those which had received supplements of 2% hydrogenated fat, 10% alfalfa leaf meal or 1% linseed oil were still acceptable, and after twelve months of storage, only those which had received

the typical turkey ration plus ethanolamine or choline were still acceptable.

FRUIT AND VEGETABLES

222I. Save on pea processing by using froth flotation.

Sci. N. L., 55, 141 (1949).

Floating is used to separate materials. Cracked peas, pea skins, nightshade berries and tar-weed seeds are now floated out of batches of peas in the way foreign material is floated out of ore. Developed at the U. S. D. A. Bur. of Agr. and Ind. Chem., the froth flotation process is expected to save an estimated two million dollars yearly in the cost of processing peas for canning or freezing.

223I. Status of parathion as insecticide for Florida citrus.

THOMPSON, W. L., STEARNS, C. R., AND GRIFFITHS, J. T. *Citrus Ind., 30,* 5-8, Mar., 1949.

Parathion killed Florida red scale and purple scale in concentration varying from 0.15 to 0.5 pounds of the active ingredient per 100 gallons. It was effective for scale control when combined in sprays with neutral compounds of zinc and copper, wettable sulfur and borax. The toxicity of parathion did not appear to be seriously affected where the minimum amount of lime was used to neutralize zinz sulfate and manganese sulfate. The longest period of control of scale insects was obtained where the sprays were applied in either June, July or August. No relationship was found between the timing of parathion in either the degreening of fruit, formation of maximum solids in the juice of fruit, or shock to the trees. The active stages of purple mites and rust mites were killed, but the period of control was of short duration. Parathion was found to be toxic to mealybugs, cottony-cushion scale and lady beetles. The residual effect of parathion on the leaves was of short duration. Zero to a trace of parathion was found in the juice of oranges and grapefruit, but slightly more was found in the peel.

PHYSICAL CHEMISTRY

224I. Measurement of particle size.

HARTLEY, A. W. *Manuf. Chem., 20,* 108-12 (1949).

The methods may be classified as follows:

(1) Sedimentation methods, (a) Andreasen pipette, (b) hydrometer method (Klein), (c) pressure methods, (d) Oden's balance, (e) turbidimetric methods; (2) Elutriation methods, (3) Centrifuge methods, (4) Measurement by microscope, (a) optical microscope, (b) electron microscope.

225I. A contribution to the theory of the structure of protein fibres with special reference to the so-called thermal shrinkage of the collagen fibre.

LLOYD, D. J., AND GARROD, M. *Trans. Faraday Soc., 44,* 441-51 (1948).

The relation between the chemical constitution of the protein fibres of silk fibroin, collagen and elastin and the chemical nature of the solvents which produce radial swelling, axial shrinkage and solution, is considered. The fibres are held together by lateral bonds of several chemical types. The swelling of the fibres in organic solvents is due to a straining or rupture of some of the types of lateral links: the production of axial shrinkage is due to the breaking of at least one type of cross bond, thus allowing the molecules to shorten with a corresponding gain in entropy. If other kinds of lateral links are left intact, the solvent will produce only axial shrinkage, accompanied by rubber-like extensibility. Solvents which break all types of lateral bond cause solution of the protein. In fibres of silk fibroin the two types of lateral bond are the direct carbimino backbone link and a hydroxyl-hydroxyl link through the serine side chains, the former being opened by formic acid and both by cuprammonium. In collagen fibres there appear to be (1) a more labile salt link, (2) one (or more) more resistant hydrogen bonds. The salt link can be broken: (a) by displacement of a non-diffusible ion or by a diffusible ion or a co-ordinate group; (b) by reagents which cause considerable swelling of the fibres; (c) by an increase in the dielectric constant of the medium penetrating the fibre. The relationship between dielectric constant, shrinkage temperature and swelling of collagen in various aqueous mixtures is discussed. The hydrogen bond type can be broken by certain organic reagents such as m-cresol, foramide, formic acid, lactic acid and thioglycollic acid, all of which can dissolve the fibre. In the elastin fibre the presence of a high proportion of long non-polar side chains limits the possibilities of the formation of lateral bonds and this fibre normally exists with the backbone in random configuration. Since elastin is insoluble in many collagen solvents it must be bonded by a few cross bonds of high resistance, the chemical nature of which is as yet unknown. The sheath of the elastin fibre is much more resistant than the core.

I. F. T. EMPLOYMENT CLEARING HOUSE

At its annual meeting to be held in San Francisco, July 10-14, The Institute of Food Technologists will operate an Employment Clearing House to bring together employers and food technologists interested in new positions. Food Processors interested in using this service are invited to contact the Committee on Employment at the time of the meeting. Registration of candidates for employment will begin Sunday and continue throughout the sessions. Inquire at the I. F. T. Registration Desk for further directions.

WORLD FOOD APPRAISAL

The Food and Agriculture Organization of the United Nations, in its *World Food Appraisal,* May, 1949, gives facts on world production, trade, and consumption of main crops in 1948, compared with prewar and 1947. In terms of calories and nutrients, production in all continents was greater in 1948 than in 1947. In all continents except Europe and Asia, production in 1947 and 1948 was greater than the 1934-38 average production. In 1948, Europe produced 91% of that average and Asia produced 99% of that average.

Europe experienced more benefits than any other continent as a result of the increase in food supplies in 1948-49. Supplies of food per person increased by about 10% as compared with the previous year. The least benefit was experienced in Asia, primarily because of political disturbances and, in China particularly, because of monetary inflation.

Book Review

TRACE ELEMENTS IN FOOD, by G. W. Monier-Williams. John Wiley and Sons, Inc., New York, 1949, 511 pp., price $6.00.

Dr. Monier-Williams' long experience in food inspection work and his original contributions to the analysis of foods for various toxic elements, eminently qualify him to write such a treatise as this. He is presently chemist in charge of the Food Research Laboratory of the British Ministry of Health.

It is unfortunate that no better term than "trace elements" has been found to describe inorganic elements present in foods not merely as contaminants, through ignorance, carelessness, accident or design, but as micronutrients whose importance is on a par with that of the vitamins. Avoiding a functional classification which might indeed involve many controversial aspects, the author has defined trace elements, for the purpose of this book, as those which may be present in the human body and in most foods in amounts up to 0.005 per cent. This, of course, includes iron which is present in such limited concentration in many foods. Certainly for this nutritionally essential trace element, as for iodine, and possibly for copper, manganese, cobalt and others, it may justly be said that never have so many owed so much to such "traces."

The author devotes his twenty-eight chapters to discussions of thirty-six trace elements, each chapter being devoted to a single element except the last two which concern barium, strontium, "lithium and other metals." The role of these elements in human and animal nutrition and in soil and plant growth is discussed and, as might be expected, many gaps in existing knowledge are indicated. The effects of deficiencies of elements essential to plant and animal life are considered. The absorption of nutritive or toxic elements by plants from soil (where they may be present naturally or added for insecticidal purposes) are discussed, as is also the availability, absorption and excretion of these elements by the animal organism.

Each chapter presents a summary of the best available information as to the content of the various elements in foods, and it is surprising to note how many of the so-called toxic elements are found in "normal" traces. For example, cadmium in amounts approximating one part per million and mercury in the order of 0.005 to 0.05 part per million occur in many natural foods. Especially interesting are the author's discussions of the principal sources of contamination by trace elements, for example insecticides and fumigants applied directly or indirectly, cooking utensils, storage containers, pipelines, soldered joints, refrigerants, etc.

The food analyst will derive much value from the authoritative discussions of methods for the determination of all these elements. Except for a few instances the methods are described in general terms so that the book serves as a critical guide to the choice of methods rather than as a laboratory handbook. The numerous literature citations are principally those of the past three decades extending up to about the mid-forties, although a few later references are given.

Among the modern techniques which appear to have been given too little consideration are emission spectrography and polarography. The principles of the latter technique are treated somewhat sketchily at one point in the book, but references are given there and elsewhere to practical applications of the procedure for analytical purposes. Notably lacking is a general discussion of the practice and limitations of spectrography. No reference is made to the microbiological methods which have recently been introduced for the determination of manganese and potassium. Procedures of this type show promise and should be watched with interest.

The book is well printed and bound, despite the fact it was produced in conformity with "the authorized economy standards." The text seems to be singularly free from typographical errors such as might be observed upon first perusal.

As the first important and authoritative work in this field in many years, Dr. Monier-Williams' opus will be off rather than on the shelves of many a food analyst's library for some time to come. BERNARD L. OSER.

TRADE-MARKS, by H. Bennett, Technical Director, Glyco Products Co., Inc. Chemical Publishing Company, Inc., 1949, 479 pages, price $10.00.

This book is divided into three main divisions. The first section is concerned with the legal aspects of trademark registration, and gives the rules of practice in trade-mark cases as published in the Federal Register for June 19, 1947 as well as the text of the new trademark law ("Lanhan Act") that became effective July 5, 1947. The Lanhan Act is interpreted and the difference between its provisions and those of the previous law are emphasized. The British Legal Requirements and the protection of trade-marks and their registration in foreign countries is discussed.

The second section of the book discusses the general types of trade-marks and the coining of words and suggests characteristics that should be considered when a trade-mark is being selected. This reviewer found the section on the making of words to be one of the most interesting in the book. Four different name finders are included with each copy of the book, each finder being used for the formation of words of specific vowel-consonant patterns.

The final portion, making up over half of the book, consists of the dictionaries of trade-marks classified as to the basic ideas suggested by the names and as to industry, a list of old trade-marks and their year of origin, an alphabetical list of trade-marks which is cross-referenced to a list of owners, and an alphabetical list giving the composition of trade-marked products. A list of books and trade journals concerned with trademarks is cross-referenced to that classifying trade-marks according to industry.

The format of the book could have been improved. The paper is a cheap grade and some of the page arrangements are unattractive and crowded. Much of the material included in the book is available from other sources, but the author has rendered a service by assembling it in one volume. This reviewer feels that the book will be of particular value to those concerned with trademarks and with the naming of new products and that others will find much of general interest.

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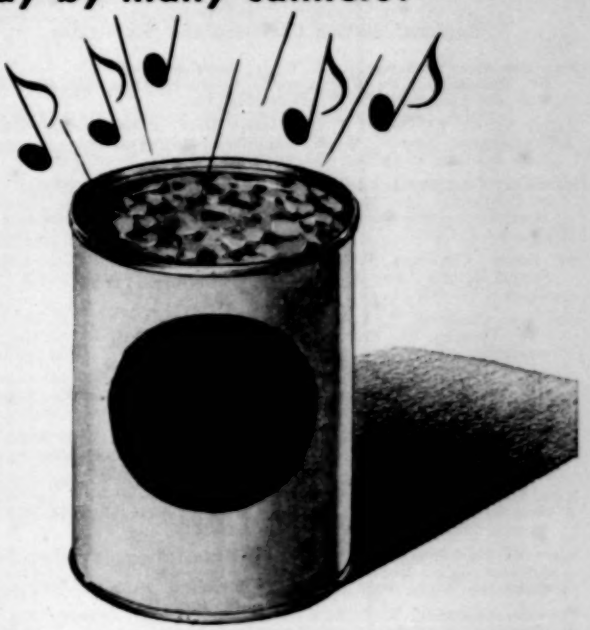

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